Indian and Eskimo Dolls at the New National Museum

INTERESTING Exhibit Embraces Dolls From Tribes of North America—Indians Show Ingenuity in the Manufacture of Playthings for Their Children—Ivory, Bone, Clay and Wood the Popular Materials—Ceremonial Dolls of the Hopi Indians—Picturesque Costumes Are Elaborate Color Schemes.

DOMESTIC life among the American Indians is for the most part peaceful and happy. There is at least a partial substantiation of this in the exhibit of Indian and Eskimo dolls at the New National Museum.

This exhibit embraces dolls collected from a number of different Indian and Eskimo tribes throughout North America. Several of the dolls are very attractive, while others are very ugly.

On the whole the Indian shows more ingenuity in making dolls than the Eskimo. Tiny effigies of the human form found among various Indian tribes are artistically dressed and elaborately beaded, and many of them are more realistic than the Eskimo toys.

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Most of the Eskimo and the cruder Indian dolls are made of ivory, clay, bone or wood. The prettily dressed dolls are strikingly like the American rag doll. The rudely modeled doll made by the Eskimo, with body of clay, wood, etc., is so inartistic as to contrast sharply with the carvings by the same people, many of which show skill and fineness of workmanship. The majority of these dolls are made erect, with the arms held stiffly by their sides or put in some conventional position. Some of the natives have a curious way of combining materials in dollmaking. Frequently they make the upper part of the doll's body of some hard material, while the legs are made of skin and stuffed with hair. In some instances this is more realistic than making the entire body of a hard material. In the doll exhibit at the museum are two or three ivory specimens of dolls showing the arms and legs carved free from the rest of the body. Many of the dolls have no suggestion of either arms or legs.

Dolls with their heads hollowed out and the eyes and mouth formed by cutting through the wood to the cavity have been collected from the Big Lake country in the territory that lies between the lower Yukon and the mouth of the Kuskokwim. The interiors of the figures were scraped out by making a hole at the back of the head. After the cavity had been made of sufficient size the hole at the back of the head was nicely covered by a finished wafer of wood.

One large case contains the ceremonial dolls of the Hopi Indians of northeastern Arizona. These dolls carry a certain significance and are used in a sort of kindergarten instruction among the children, teaching them the mythology of the tribes. They are made of wood and are gorgeously and grotesquely painted. They are ornamented with beads and some of them are dressed in feather garments. The little girls of the Hopi tribes are presented with these dolls and through them learn about the snow, lightning, rain, etc. They have a war doll which is always represented as black. Each fantastic mark, the arrangement of the hair, beads and feathers, hold some peculiar significance and serves to teach a lesson.

Eskimo and Indian children had not one doll or two, but a surprising number—dolls of a variety of sizes and of all styles of dress, the majority of them made to stand upright. Some are girl dolls, boys, grown dolls and some infants. But wood, ivory, rag or pottery, the Indian and Eskimo children loved them all. A special doll was one made in the image of a favorite hunter or conjurer. This was supposed to be a magic doll and was an object of mysticism and reverence among members of a tribe. If an Indian chief wished to be particularly successful when undertaking an adventure more or less perilous, he made it a point to attach one of these dolls to his belt.

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The girls were not confined to the dolls alone in their play, but had a complete set of doll toys, and bedding for the dolls, which was made from the skins of lemmings or rats. Each little girl had small mats made of grass and used for various purposes. Each doll had an entire outfit of clothing, boots, mittens and moccasins. Each tribe fashioned these toys after the styles in vogue in that particular locality.

Childhood is essentially the same the world over and these Eskimo and Indian children played with their toys just as civilized children do. The dolls were dressed and undressed, fed and put to bed, or taken for a walk. Eskimo children build diminutive snow huts for their toys.

A curious story is told by a visitor to one of the Indian tribes. All the papooses eyed him shyly and wonderingly. When he was called away for a minute or two he found, upon his return, a long line of Indian dolls arranged so that they could eye him as their little mistresses had done. The visitor found the dolls a very solemn lot. The little Indian papooses were anxious to give their toys the opportunity of observing the stranger and had taken this means of doing it.

The top shelf in one of the main show cases on the first floor of the museum contains nothing but doll papoose cradles. There are a few of these also on the second shelf. The cradles are of different sizes and many styles. Most of them are elaborately beaded and surprisingly artistic.

The foundation of all these cradles is a flat board, which is first shaped, smoothed and polished before the cradle part is attached. The cradle proper is made of cloth or skin. Some of them are solidly beaded with bright beads, others have a row or two of beads on them or a conventional figure or a floral design. One of the prettiest is beaded almost solidly with bright blue beads and into this background of solid blue is set a floral design of red, yellow and green beads. The contrast is striking and extremely pretty. This cradle is not laced up the center, as the majority are, but the hood or pouch is made of dark cloth lightly beaded. At first glance one is reminded of grandfather's comfortable bedroom slipper when noting this Indian doll cradle. Within this small cradle stands a little doll papoose, whose head is swathed in brightest red.

Another cradle is crude, being made entirely of wood, and there is little more to it than the flat board itself. At the top of the board several narrow strips of wood, cut so thin as to be flexible, are curved to form a hood for the cradle. The doll is tied uncomfortably to the board with a stout piece of string. The little Indian stoic is made of wood. It is an almost featureless doll, there being no mouth or nose, and the eyes are represented by two holes bored through the head. The arms are indicated by two slashes in the sides of the oblong block of wood.

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Probably the most elaborate of the cradles is one mounted on a board shaped rather like an old-fashioned bootjack. The board itself is studded at the top with a couple of large round bright objects that look like pieces of silver. The cradle proper is covered so well with small blue beads that it is difficult to tell what kind of material is used for a foundation. Into the blue is introduced a floral decoration and a conventional design of varicolored beads. A thick strand of long yellow hair, which resembles horsehair, hangs down one side of the cradle. The latter is laced up the center with a brown cord. The touch of red beads on it introduces the color which is so characteristic of Indian dress and decorations.

Many of the dolls on display are quite magnificent in their picturesque costumes. One of the largest, approximately two feet in height, is regally garbed in a navy blue blanket costume, the skirt of which is heavily beaded with yellow, blue and white beads. The beaded patterns are of stars, crescents and other conventional designs used by Indians. The upper part of the robe and the sleeves are trimmed with rows of teeth from some fair-sized animal, probably the elk. There is a leather belt with this costume which is studded with pieces of metal that resemble large, bright nailheads. Attached to the belt is an exquisitely beaded sheath, the beading solid and in patterns. A rude kind of knife or dagger is thrust into the case. The belt has another dangling ornament, a miniature papoose cradle, also wonderfully beaded, the tiny white beads forming the background.

From the depths of this miniature papoose cradle peeps the tiny brown face of a doll. The doll's moccasins are perfect specimens of the wonderful work done in beading. They are made of skin covered with small beads of white, green and red. The doll itself bears a striking resemblance to the American rag doll. The head is made of some kind of brown skin, the cheeks are painted or stained a vivid red and the eyes, nose and mouth are outlined in white beads. The wig is of black hair, long and straight, rather scraggly and scanty, but with the appearance of real Indian hair. No attempt is made to arrange it artistically or conventionally.

Many of the dolls wear necklaces, and many have wigs. One is conspicuous for its light hair. There is only one Indian doll with a wig of blond hair shown in the exhibit. All Indian dolls have moccasins.

There is a Sioux squaw doll in the collection, with a head made of cloth and eyes of beads—a blue bead between two white beads. The mouth is a couple of red beads with a white bead at each end of the red-bead line. The Sioux doll is extremely long from her waist down. She is dressed in buckskin fringed prettily at the bottom and sides of the gown. The buckskin is further decorated with blue, yellow, red and white beads.

An Arapahoe doll made of buckskin with the trousers beaded down the sides, and a broad band of red and yellow beads around the bottom of each leg, an elaborately beaded and fringed jacket, is supposed to represent a warrior. His eyes, nose and mouth are of beads, and his long black hair is divided into two thick strands and bound tightly with narrow strips of buckskin. Streaks of war paint adorn his face. His tiny brown moccasins are covered with designs in green, black and yellow beads. Reaching from tip to the toe is a head ornament of purple and yellow feathers.

An Arapahoe lady companion has a gown beaded and fringed similarly to the warrior's suit, but instead of the war paint she has brilliant red on her cheeks. She has long black hair, but no headdress.

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A Crow Creek squaw doll of buckskin has a stuffed cloth head. The lady has no nose, though her eyes are blue and white beads and the blue beads are used, instead of the red ones, as in the case of the Sioux Indian doll, for her mouth. Each side of her face is lined with vertical stripes of real paint, which was fashionable at one time among the Crow Creek Indians. White beads are sewed all around the doll's face, which gives it the effect of being in a frame. She wears a buckskin gown with fringed skirt, sleeves and yoke. This doll also wears a leather belt ornamented with round pieces of silver as large as dimes.

A large doll from the Yukon and Kuskokwin river country was made of wood and the eyes and mouth consisted of pieces of ivory, inlaid in the wood. Another doll from this section has a string of beads attached to the forehead in such a way as to represent earrings. Holes are pierced at the corners of the mouth to receive the beads. The eyes of the doll are of blue beads and turned in such a way that the pupil is formed by the hole in the center of the bead. The head is attached to a smooth, round, wooden peg which slips easily into a socket cut in the body of the doll. The peg is about half an inch in diameter, and at the lower end are two cords which can be manipulated in such a way that the head will turn from side to side. This doll closely resembles the jointed dolls that American children play with.

An ivory doll represents a woman with a child in her arms. Others are dolls of women with their baby dolls tucked comfortably away in the capacious hoods of their fur coats. This was a fashionable way of carrying infants among some of the northern tribes.

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A mechanical doll holding a drum and stick is novel. It is made sitting, and in this position measures more than eleven inches high. The body is of wood, legs are formed by a knot of wood with two projecting branches and arms are fashioned from whalebone, which is flexible enough to permit them to wield drum and stick when properly manipulated by his mistress.

One Eskimo doll looks like a block of wood with a very poorly modeled head. The features are chiseled out with evident care, however, and an inlay of white ivory, quite startling against the dark brown of the wood, indicates the eyes and mouth.

The dolls of the western Eskimo are for the most part of ivory. Some of them are only half dolls, showing the trunk and head. They are not clothed and have no bead ornaments.

Another Eskimo tribe has made its wood and ivory dolls somewhat larger than those of the western Eskimo. Many of these are dolls of ordinary size and are carefully and warmly clad in suits of skin and fur. There is not much opportunity for trimming in these fur suits, though some are fringed with fur. They all have cozy fur hoods to their suits. One wears a nose ring of small blue beads.

The south Alaska Indians make dolls of wood and ivory for their papooses. The dolls are all small and extremely attenuated, and features are skillfully chiseled. The majority of Eskimo dolls are quite bald, but the south Alaskan Indian doll has just a suggestion of hair, a long wispish bit that straggles untidily from beneath the little hood. Their dress is not of skins or furs, but the cheapest of figured material. Most of the dresses are stained with age, and in some instances dirty little hands probably left indelible marks on them. Labrets made of beads are in evidence. Sometimes two holes, one at each side of the mouth, hold these.

The papooses of the Yukon river Indians have the best dresses in the far north. The dolls themselves are of wood and their features are painted with black paint or chiseled carefully. They have no sign of hair. Suits and dresses are always made with a hood. The material is buckskin or reindeer skin, and trimming consists of fringe and strands of beads bunched together. There is no effort made to shape a pattern or design as the plains Indians do in their bead work.

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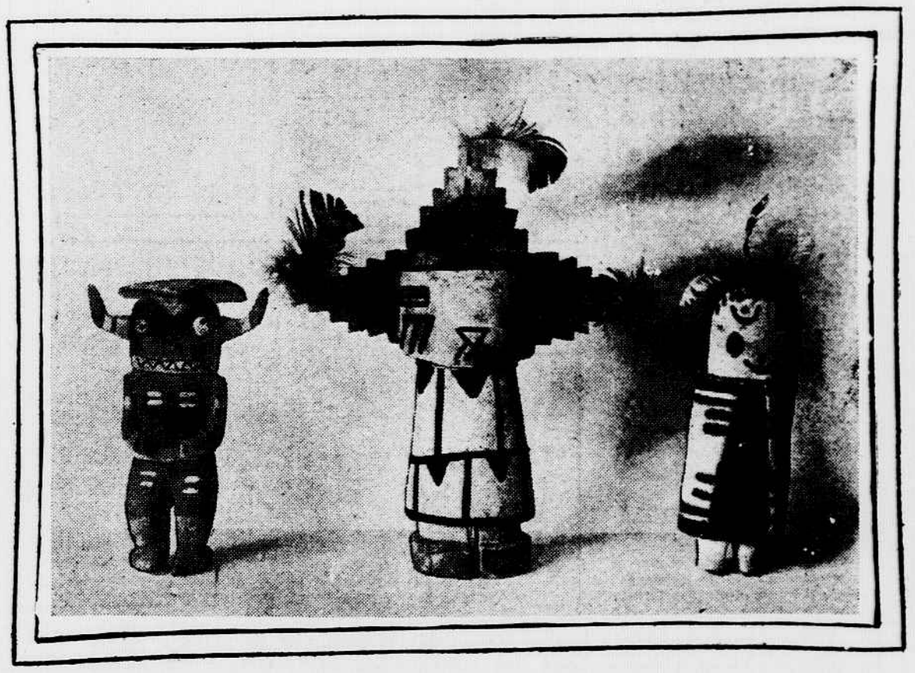
Papoose dolls of the Labrador Indians are also on exhibit. These are made of wood with features outlined in black paint or chiseled. Some are very good looking dolls when one considers the tools used and the general lack of cultural arts among the people. They have a dash of bright color about the clothes. Some of these dolls have but a touch of scarlet or crimson about the dress, others have a skirt or jacket of red. Labrador Indian garb is, on the whole, nondescript in character.

Scattered through other cases are dolls of the Mohave Indians of Arizona. Most of these are made of pottery. Their features are shaped from clay and do not conform to our standards of beauty. Eyes are made to bulge, the nose is shaped like a beak and the mouth is little more than a slit in the clay. They are painted with circles, dots and stripes. Except for an abbreviated skirt, they wear no clothing. Long strings of beads dangle from their ears, many of them reaching below the shoulder. One Mohave doll of willow bark is so worn, frayed and stained with age that it resembles a mummified doll.

Dolls of the Pueblo Indians are of generous proportions and are made of white pottery. They are remarkably decorated with black paint.

INDIAN DOLLS ON EXHIBIT AT THE NEW NATIONAL MUSEUM. THE EYES AND MOUTH OF THE CENTER DOLL ARE MADE OF BEADS.



DOLLS OF THE HOPI INDIANS, EACH ONE TEACHING A LESSON.

Great Stores of Valuable Minerals to Be Opened by Alaskan Railroad

ENORMOUS Resources of Gold and Coal—Where the Mines Are Located and Their Present Production—Queer Features of Work Along Present Construction—A Walk Over the Road With the Superintendent—With the Government Engineers at Anchorage and Fairbanks—A Business Administration.

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ANCHORAGE, Alaska.

I HAVE just returned from a ride along the line of Uncle Sam's railway. The new construction begins here at the mouth of Ship creek, where ocean steamers land their supplies in the summer, and the roadbed has been graded for about forty miles. Twenty miles of track have been already laid, and everything is in preparation for rapid work as soon as Congress passes the bill supplying the money. The work has been so pushed that by last November the engineers had done what it was supposed would require the whole winter. They have made careful surveys of the route from here to Fairbanks, and have covered the branch line which goes from Matanuska Junction to the Chickaloon coal fields. They have gone over the Alaska Northern railway, which Uncle Sam bought last year at a cost of $1,150,000, and have put thirty-five miles of that road in running condition. They have laid out the extension of the Alaska Northern to Anchorage, and, in short, have now planned the whole railway. They have made careful estimates of the cost of everything connected with it, and have constructed contour maps showing the country on the scale of one inch to the mile. They know just what they have to expect, and from now on the road can be pushed as rapidly as Congress will furnish the money.

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The act providing for government railroads in Alaska was passed March 12, 1914. It authorized the operation and building of railroads here to an extent not to exceed 1,000 miles and at a cost of not more than $35,000,000. It was on this authorization that the President bought the Alaska Northern railway and decided to extend it to Fairbanks, a distance of 472 miles, at a cost of something like $27,000,000. But Congress will have to appropriate the money as needed and the progress of the work is dependent upon the two houses at Washington. In 1914 the appropriations amounted to about $1,000,000. Something like $2,000,000 was appropriated last year and the engineers have asked for $10,000,000 to be spent in 1916. If that is granted the road to the Matanuska coal fields can be completed and the lower portion of the extension to Fairbanks put into operation this year. The road can also be built from the Nenana coal fields to the Fairbanks gold mines, giving that rich territory the cheap fuel it so greatly needs.

The total length of the government railway will be under 500 miles, and the engineers tell me it can be constructed at an average cost of about $50,000 per mile. In some places the cost will run to $90,000 per mile, but in others it will be $20,000 or under. The road will cost about the same as the western end of the Grand Trunk Pacific railway and it will be more expensive than the Northern Pacific or the Puget Sound division of the Chicago, Milwaukee and St. Paul. The track is to be of the standard gauge, with rails of seventy pounds to the yard. It will be substantially built and of the most modern construction.

I like the way our government engineers are handling their job. There is no red tape here at Anchorage and so far "fuss and feathers" are absent. The three engineer commissioners are as plain as pipe stems, and they tramp about with the men and go over the job on foot and on horseback. Nevertheless, William C. Edes, the chairman of the commission, has built some of the great roads of the west. Lieut. Frederick Mears was superintendent of the railway at Panama, and Thomas Riggs, jr., was at the time of his selection chief of the boundary survey. They are all men of practical experience and are especially fitted for life and work on the frontier.

I have already written of the headquarters of the engineer commission. The two-story house put up for them here at Anchorage would not rent for more than $15 a month in the States. The most of the clerks are doing their work in tents or log cabins, and the forestry department of the government is a two-room shack with folding cots, on which the clerks sleep at night. The commissary building is of logs, and the stables nearby, where from fifty to one hundred horses are kept, are of canvas. The hotel or messroom for the men and government employes is of logs, and three meals there are given for $1 a day. So far I have to meet an official who puts on any airs. Most of them go about with their pants in their boots, and the clothes worn by the engineer commissioners would hardly bring the value of the wool in them at a second-hand store.

Everything is business. The work began sixteen days after the President decided the route, and it has gone on steadily as long as the money has lasted. Fifteen hundred men have been at work the past year, and something less than a thousand are now on the job. Mr. W. C. Edes, the chief engineer, has had large experience in constructing railways in our Rocky mountain highlands and throughout the west, and he is using the same methods of employment which have proved most economical and most efficient in Oregon, California, Washington and Canada.

The construction and grading are after a system known as station work. A certain section of the road, or station, is given out to a number of men called a gang, who contract to build it according to the specifications. They go in together as partners, and have an equal share in the work. The cost is estimated by the cubic yard, and the pay is on that basis. The government sees that the men have fair treatment. It has timekeepers who go over the work and keep track of just what each man does, so that on the completion of the job the account shows the efficiency of every man on it. There is nothing of the peonage system connected with these arrangements. There is no one who employs all the hands and gets a rake-off. The government sees that the arrangement is on a partnership basis, and that each man gets his individual check for his share. The great advantage of this method is that it eliminates all questions as to hours and conditions of work. Uncle Sam pays for results only, and that within a fixed time.

I have asked the officials as to the wages prevailing in the other branches of the construction. Mr. Edes tells me they are higher than those paid for similar work in the western parts of the United States, although they are much below those of interior Alaska. The men here are now getting from 37½ cents an hour upward. Some of the skilled laborers are paid 50 cents an hour, and some 75. This is without board, but the latter is furnished at the government messhouse at 33⅓ cents a meal. The time is eight hours where the men work by the day, and this makes the wages range from $3 to $6. The men have the right to buy their personal supplies and other things of the government commissary, where goods are sold for their wholesale cost, plus a small percentage for handling the business. This gives them the goods at about 40 per cent under the ordinary prices, and enables the poorest of them to clear as much as $2 per day. Medical and hospital charges are free.

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So far there has been plenty of labor. The United States has a large class of professional railroad builders who move about from job to job. There are also many who prefer to work on the frontier, and it is this class that is now doing the greater part of the construction. The men are of all nationalities and the greater proportion are foreigners. In addition are a few men from Alaska. The engineers tell me it is difficult to get Americans to do the rough work. They all want to be foremen, bosses or timekeepers. They will work hard as prospectors and miners, but they will not continue for any length of time to handle the pick and the shovel at so much per day. The Alaskans are doing much of the clearing, and they have taken many contracts for ties. They object to the low wages of the government, which are far under those which have prevailed throughout the interior, where $5 a day and board is still paid.

I wish I could show you the roadbed and track so far constructed. The new railway looks as though it might form an exhibit in a national exposition. It runs through the woods, but the land on both sides has been cleared and ditches drain away every bit of the water. A smooth bed of gravel, ten or more feet in height, has been made through the valley of Ship creek, and this is of the requisite width for the track. I have never seen a better looking roadbed anywhere, and now at its beginning it compares favorably in appearance with that of the Pennsylvania or the New York Central.

The engineers have the advantage here of building along hills made of gravel. They are composed of pebbles ranging from the size of my fist to that of a pea, and all that has been necessary to get the material for the fills has been to drive cuts into the hills at the side of the track. These cuts are then roofed over and the cars are run into the bank and loaded by gravity. I understand that gravel can be easily gotten along the greater part of the route between here and Fairbanks, and that much of the track will be permanent and easily repaired.

My trip over the new roadbed was made in company with Mr. J. E. O'Reilly, the superintendent of the railway construction. Mr. O'Reilly has the management of the work and the men under the direction of Lieut. Mears, one of the engineer commissioners. He is well fitted for the job. He has had a long experience in Alaska, where he has been engaged not only in mining, but as one of the builders of the Alaska Northern road, which forms a part of this government line. He has also been connected with railroad construction in our western states. He, therefore, has a thorough understanding of the country and how to handle the workmen who are building the road.

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We started at the harbor and crossed the railroad yards about which the terminals are to be built. These yards have an area of 500 or 600 acres, and the ground is as flat as a floor. It was originally covered with forest, but the trees and stumps have been cleared away and now it looks like an Iowa corn field just plowed. A number of tracks have already been laid upon it, and here and there are other tracks building. Scattered about are railroad supplies of all kinds. There are locomotives and boilers from Panama; there are fireboxes and steel rails, and machines of all kinds. On one side of the yards are millions of feet of pine lumber from Puget sound, and on the other are great piles of ties that were cut in the forests of the Kenai peninsula and shipped here via Turnagain Arm.

None of the large permanent buildings has yet been erected, but they will all be put up on this tract. There will probably be large offices for the officials and clerks. There will be machine shops for the roads and warehouses and depots for the Matanuska coal which will be sent here for export. There may also be smelters and factories of one kind or another.

During my stay at Anchorage I have learned about the country through which the railroad will go from Mr. Thomas Riggs, jr., who has charge of much of the work throughout the interior, and who has personally gone again and again over every foot of the ground. He tells me that the most of the region has not yet been fully prospected. The land is covered with moss and other vegetation which so hides the rocks that it is hard to tell what there is. It is known, however, that the road will give easy access to many rich gold deposits, and that mining camps will spring up here and there all along the way from Seward to Fairbanks. There is quartz gold near the line of the Alaska Northern, and there are quartz and placer mines in other parts of the Kenai peninsula. As much as $450,000 in gold were taken out of the peninsula in 1914.

Going north of Anchorage at Mile 185 from Seward is Willow Creek. This is forty miles north of Anchorage, and it should be reached by the railroad this year. Willow Creek has three quartz mines, with a ten-stamp mill. It produced gold last summer to the amount of $315,000. The mill is about twenty miles from the end of the tracks now being laid.

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A little further north is the Talkeetna river, where there is good farming land. That part of the country is open. It is made up of plains and valleys spotted with groves and covered with grass. A short distance to the west of it are the Yetna and Skwetna mining districts, where many prospectors are working. They are taking out placer gold. Some of the men are grub-staking, the outsiders who furnish the money getting half of the findings.

One of the most promising mining districts along the new railroad is near Broad pass, where the road crosses the mountains at an altitude of 2,400 feet above the sea. The pass is about five miles in width, and there are mountains on each side of it eight or nine thousand feet high. Off to the west can be seen Mount McKinley, which is sixty-five miles away, and on the east are the Cathedral mountains and Mount Hayes. The latter is almost as high as Fujiyama or Pikes peak. Mount McKinley is over 20,000 feet high; it is higher than any peak on the North American continent, having its equal only in the Himalayas and the Andes.

To the west of Broad pass discoveries of large low grade quartz gold are reported. The gold is of a refractory character, running from $1 to $8 per ton. It will probably develop considerable traffic. Further over in the foothills of Mount McKinley is the Kantishna mining district, which has gold, antimony and other metals. There are sixty odd miners and trappers there now, and some of them are doing quite well. One company has taken out 1,000 tons of antimony, which will be sent out as soon as navigation is opened. The war has made that metal exceedingly valuable.

Another mineral which is now being mined in Alaska may be found in that same region. It is known to exist near Fairbanks, where they are mining it and shipping the concentrates by parcel post. This mineral is sheelite, a high-grade tungsten, used for making ammunition. The concentrates sell for $3,500 a ton.

Going further along the railroad you reach the Nenana coal fields and then come to the Tolovana gold region, which lies not far from the route between Nenana and Fairbanks. This is a new district, where something like 500 men are now prospecting. They took out $60,000 worth of gold last summer, and the possibilities are promising.

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But most important of all the mining regions so far discovered is that of Fairbanks itself. The whole country about that city carries gold. As much as ninety million dollars' worth has already been washed out of the creeks and valleys nearby, and the production last year was three and one-half million dollars. The most of this comes from placers; quartz mining is a comparatively new industry and it has produced only about $800,000.

The Alaskan mining regions will profit exceedingly by the cheap fuel that will come from the railroads. Those of the Kenai peninsula, the Matanuska valley and all south of Broad pass will have cheap coal from the Chickaloon coal fields, whereas those on the northern side of the pass and in the Tanana valley will be supplied by the great coal deposits of the Nenana region. The Chickaloon coal is from the Matanuska fields. It is said to be equal to the Pocahontas. The government has mined and tested eight hundred tons of it on the vessels of the navy and it is found to be excellent. It can be used for coking and it will be the first Alaskan coal of commerce.

The Nenana fields are of vast extent. The railroad passes through them, and it is down grade all the way from there to Fairbanks. The coal deposits run from the railroad eastward for a distance of perhaps 100 miles. The black strata can be seen standing out in the cliffs, and in places the veins are forty feet thick. The coal is a high-grade lignite, suitable for all local commercial purposes. It has an ash which is 46 per cent fixed carbon, and its heat value is equal to about 12,000 British thermol units. It is not good enough to bear exportation, but it will be of enormous value to the mining regions of the interior.

In order to appreciate what this coal means to the mining regions, it must be remembered that most of the gold deposits are in frozen ground. The frost and ice go down to bed rock. The earth has been frozen for ages, and it has to be thawed out by fire or steam. A single mine will often consume from ten to twelve cords of wood a day, and so far nothing but wood could be used. Something like 100,000 cords of wood are now annually sold in the region about Fairbanks. This wood costs from $10 to $16 a cord, and the average in Fairbanks is between $11 and $12 a cord. At $15 a cord a mine will use as much as $150 worth of fuel a day, and without the gravel or quartz is of comparatively high grade it will not pay to work it. Moreover, the wood here is soft, and it has no great heating value. The Nenana coal, when the railroad is complete, will probably be worth at the mines about $5 per ton, and as one ton of coal is equal to two cords of wood, five tons will thaw out as much earth as ten cords of wood. In other words, the difference in cost will be the difference between $25 and $150 a day in working the mines. This alone will mean a great profit and it will result in enormous areas of low-grade, gold-bearing regions being worked. It means the opening of many new quartz properties, and a great increase in the valleys and benches where the gravel can be washed over by dredging and hydraulic sluicing.

FRANK G. CARPENTER.

MR. CARPENTER STANDING BESIDE PILES OF RAILROAD TIES CUT ON THE KENAI PENINSULA.

CHIEF ENGINEER EDES AND LIEUT MEARS ON NEW TRACKS AT ANCHORAGE.

Gardening on Small Scale.

THE Japanese have the art of dwarfing trees to mere shrubs, and of cultivating plants in a similar way. The people take great delight in their miniature gardens, which require a special gardener to keep them down to desired limits.

A Japanese garden is generally about ten yards square, and in this small space is found a park and demesne, with lake, summer houses, temples, trees, all complete and all in keeping with the dimensions available. The lake is four feet long and full of small goldfish. On the border stands a pine tree, exactly eighteen inches high and fifty years old; beneath its shade is a temple carved out of one piece of stone the size of a brick.

On a lofty crag of some two and a half feet stands a fine maple tree, perfect in form and shape, fifteen years old and eighteen inches to two feet high, growing in shallow dishes. There is of record a complete garden contained in a shallow two-dozen wine case. Everything was complete, down to the fish in the lake, a sheet of water only a few inches square, and the foot bridges over the water courses. Tea houses there were, and numerous trees of various kinds, each about six inches high. Old as the hills these, but full of vitality and yet never growing bigger.